
INDIANA **Epidemiology** *NEWSLETTER*



Epidemiology Resource Center
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Smallpox Vaccinations and Communicable Disease Rule Change

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The Centers for Disease Control and Prevention (CDC) will be releasing smallpox vaccine to the Indiana State Department of Health (ISDH) in the next few weeks. This vaccine will be used to immunize two types of Indiana Smallpox Response Teams, public health and hospital-based, which will be responsible for the early response should there be an outbreak of smallpox. Therefore, Indiana clinicians may have occasion to assist in evaluating post-vaccination reactions. It is important for all Indiana clinicians to be familiar with the complications of smallpox vaccination as well as with the recognition and management of smallpox disease.

Because it is important to monitor adverse reactions to smallpox vaccination and transmission of vaccinia virus to others, vaccinia-related adverse events are now included in the Communicable Disease Reporting Rule, effective Feb. 15, 2003. Physicians are required to **immediately** report to local health departments any suspected cases of smallpox disease and the following adverse events or complications related to smallpox vaccination OR secondary transmission to others after vaccination:

- Accidental implantation at sites other than the vaccination site
- Eczema vaccinatum
- Generalized vaccinia
- Progressive vaccinia
- Vaccinia encephalitis
- Vaccinia keratitis
- Secondary bacterial infections at the vaccination site
- Death due to vaccinia complication
- Congenital vaccinia
- Other complications requiring significant medical intervention

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Adverse events also need to be reported to the national Vaccine Adverse Events Reporting System (VAERS) and can be reported electronically at <http://www.vaers.org/>.

If a patient has a severe adverse reaction to smallpox vaccination, which may require Vaccinia Immune Globulin (VIG) or Cidofovir, the ISDH Provider Hotline should be accessed at **1-866-233-1237**. This 24/7 hotline will quickly contact Dr. Charlene Graves, Medical Director of Immunization, to route this request on to CDC, the only source of these medications. CDC will also provide 24-hour clinical consultation, which can be accessed through a provider hotline being established there.

Polychlorinated Biphenyls (PCBs) in Fish

A brochure, created by the Illinois-Indiana Sea Grant, is available here at the Department of Health. It contains useful information on polychlorinated biphenyls (PCBs), with emphasis on certain fish in particular in the Great Lakes, and their effects. It is also a multilingual brochure, with English, Spanish, Polish, and Korean language interpretations.

Copies can be obtained by contacting **Barbara Gibson at (317) 233-7294** or through written requests to:

Indiana State Department of Health
Environmental Epidemiology Section
2 North Meridian Street, 3-D
Indianapolis, IN 46204

Continuing Medical Education (CME) Opportunities

There are many smallpox continuing medical education opportunities available. Web-based medical information is readily available to all Indiana clinicians. The enclosed one-page "Guide to Smallpox Information" provides you with the possibility of reviewing excellent quality presentations at any time.

Also available is a CDC-sponsored brochure, *Smallpox Vaccination Method & Reactions*, which has excellent color photographs that show the steps in vaccination, the normal responses to primary vaccination and to revaccination, and possible serious adverse events that might occur in vaccinees. Professional medical/specialty societies have received copies of this brochure for distribution to their members.

The ISDH, in cooperation with Indiana Hospital & Health Association, is making available to Indiana hospitals a video based on a recent program offered by the US Army "Smallpox Recognition and Response". The video is 54 minutes in length and was first broadcast in a longer version on November 6, 2002. It features two physicians who have had extensive experience in evaluating vaccination adverse events, diagnosing smallpox cases, and treating smallpox patients. Please contact the medical education office of your nearest hospital to learn when a viewing of this video will be scheduled.

If there are any questions about medical issues relating to the smallpox vaccination plan, please contact Charlene Graves, M.D., by calling (317) 233-7164, or by e-mail at cgraves@isdh.state.in.us.

Correction (December 2002 issue) Indiana Smallpox Pre-Event Vaccination Plan

These following figures were inadvertently omitted from the smallpox pre-event vaccination article in the December issue of the *Indiana Epidemiology Newsletter*. Figure 1 diagrams the ten bioterrorism preparedness districts in Indiana. Table 1 lists the contact information for each county. The contact information for the coordinating health departments for the smallpox pre-event vaccination effort is shown in bold type.

Figure 1.

ISDH Bioterrorism Preparedness Districts

District 1
4 counties
675,971 population

District 2
8 counties
735,463 population

District 3
11 counties
687,581 population

District 4
9 counties
566,809 population

District 5
8 counties
1,474,128 population

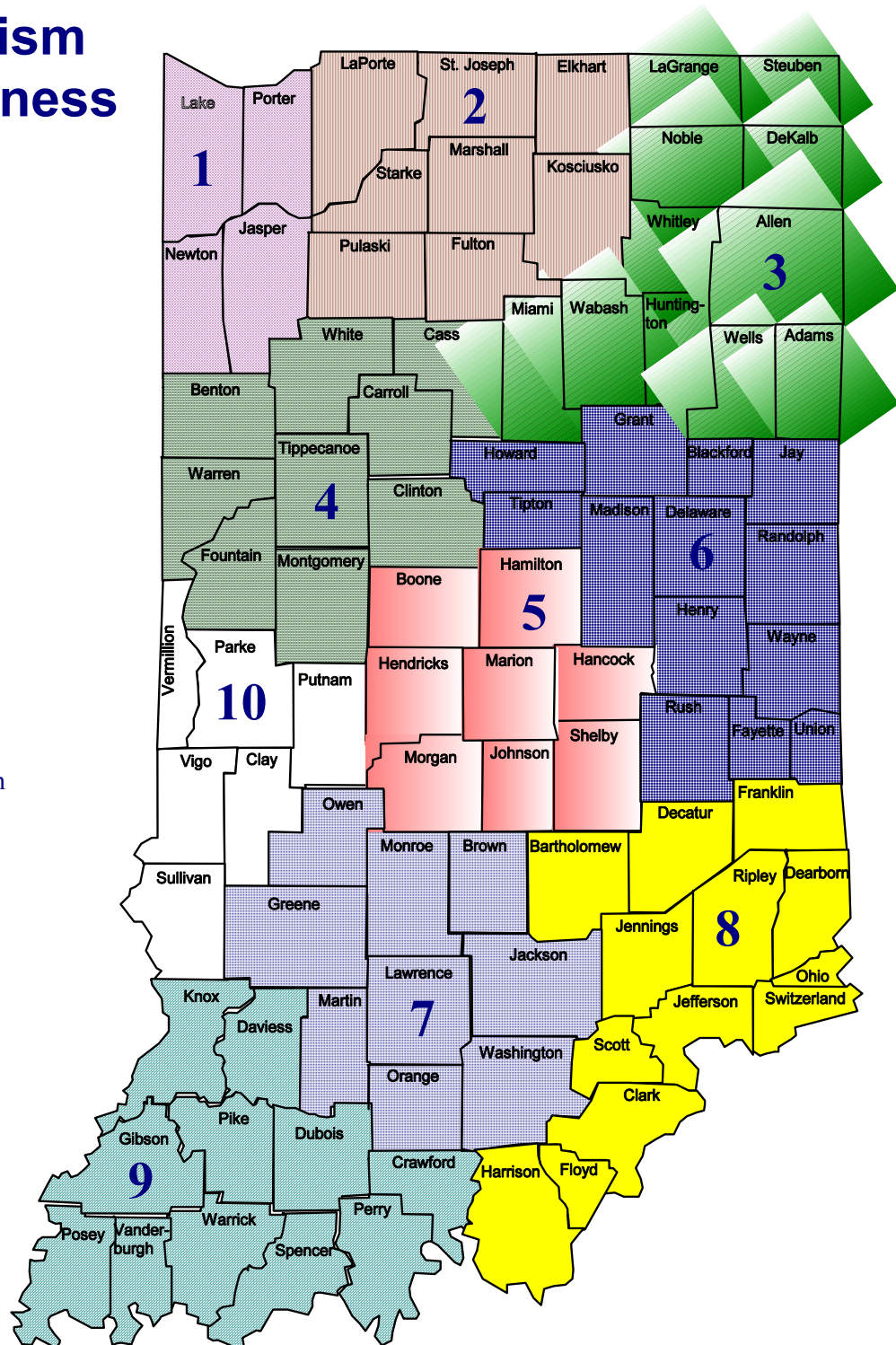
District 6
13 counties
661,129 population

District 7
9 counties
324,618 population

District 8
13 counties
489,300 population

District 9
11 counties
455,486 population

District 10
6 counties
224,203 population



10/04/02

ISDH Bioterrorism Preparedness Districts

<u>District 1</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Jasper	105 W Kellner St	Rensselaer, IN 47978-2623	Michael Louck, MD	(219) 866-4917	(219) 866-4108
Lake	2293 N Main St	Crown Point, IN 46307-1896	Susan Best, DO	(219) 755-3655	(219) 755-3668
Newton	210 E State St	Morocco, IN 47963-0139	Gonzalo Florido, MD	(219) 285-2052	(219) 285-8535
Porter	155 Indiana Ave Rm 104	Valparaiso, IN 46383-5502	Gary A Babcoke, MD	(219) 465-3525	(219) 465-3531
<u>District 2</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Elkhart	608 Oakland Ave.	Elkhart, IN 46516	Aixsa Pérez, MD.	(574) 523-2283	(574) 295-6186
Fulton	125 E Ninth St	Rochester, IN 46975-	Craig A Bugno, MD	(574) 223-2881	(574) 223-2335
Kosciusko	100 W Center St 3rd Fl	Warsaw, IN 46580-2877	William L Remington Jr, MD	(574) 372-2349	(574) 269-2023
LaPorte	809 State St	Laporte, IN 46350-3329	Charles T. Janovsky, MD	(219) 326-6808	(219) 325-8628
Marshall	112 W Jefferson St Ste 103	Plymouth, IN 46563-1764	Byron M Holm, MD	(574) 935-8565	(574) 936-9247
Pulaski	125 S Riverside Dr Ste 205	Winamac, IN 46996-1528	Rex A Allman, MD	(574) 946-6677	(574) 946-6654
St Joseph	227 W Jefferson Blvd Rm 825	South Bend, IN 46601-1870	Janice M Carson, MD	(574) 235-9750	(574) 235-9960
Starke	53 E Washington St	Knox, IN 46534-1148	Walter Fritz, MD	(574) 772-9137	(574) 772-8035
<u>District 3</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Adams	313 W Jefferson St #314	Decatur, IN 46733-1672	Brian D Zurcher, MD	(260) 724-8215	(260) 724-2708
Allen	1 E Main St 5th Fl	Fort Wayne, IN 46802-1810	Deborah McMahan, MD	(260) 449-7561	(260) 427-1391
DeKalb	215 E 9th St Ste 201	Auburn, IN 46706-2362	Mark S Souder, MD	(260) 925-2220	(260) 925-2090
Huntington	201 N Jefferson St Rm 205	Huntington, IN 46750-2868	Thomas Ringenberg DO	(260) 358-4831	(260) 358-4899
LaGrange	114 W Michigan St Ste 9	Lagrange, IN 46761-1860	Thomas Anthony Pechin, MD	(260) 499-6342	(260) 463-7835
Miami	Courthouse Rm 110	Peru, IN 46970-2245	Neil J Stalker, MD	(765) 472-3901	(765) 473-6398
Noble	2090 N State Road 9 Ste C	Albion, IN 46701-9566	Gerald G Warrenner, MD	(260) 636-2191	(260) 636-2192
Steuben	317 S Wayne St Ste 3A	Angola, IN 46703-1938	Ted Crisman, MD	(260) 668-1000	(260) 665-1418
Wabash	89 W Hill St	Wabash, IN 46992-3184	William D Dannacher, MD	(260) 563-0661	(260) 563-6082
Wells	223 W Washington St	Bluffton, IN 46714-1955	Donald A Dian, MD	(260) 824-6489	(260) 824-8803
Whitley	101 W Market St Ste A	Columbia City, IN 46725-2312	Thomas D Hamilton, MD	(260) 248-3121	(260) 248-3129
<u>District 4</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Benton	706 E 5th St Ste 12	Fowler, IN 47944-1556	Donald L McKinney, MD	(765) 884-1728	(765) 884-2026
Carroll	101 W Main St	Delphi, IN 46923-1566	T Neal Petry, MD	(765) 564-3420	(765) 564-6161
Cass	1201 Michigan Ave Ste 230	Logansport, IN 46947-1562	Richard Glendening, MD	(574) 753-7760	(574) 753-7039
Clinton	211 N Jackson St	Frankfort, IN 46041-1936	Stephen D Tharp, MD	(765) 659-6385	(765) 659-6387
Fountain	210 S Perry St	Attica, IN 47918-1352	P R Petrich, MD	(765) 762-3035	(765) 762-6520
Montgomery	110 W South Blvd Ste D	Crawfordsville, IN 47933-	Carl B Howland, MD	(765) 364-6440	(765) 361-3239
Tippecanoe	20 N 3rd St	Lafayette, IN 47901-1211	Wendell Riggs, MD	(765) 423-9221	(765) 423-9154
Warren	210 S Perry St	Attica, IN 47918-1352	P R Petrich, MD	(765) 762-3035	(765) 762-6520
White	110 N Main St	Monticello, IN 47960-0838	Phillip Hassan, MD	(574) 583-8254	(574) 583-1513

<u>District 5</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Boone	116 W Washington St B201	Lebanon, IN 46052-2147	Herschell Servies Jr, MD	(765) 482-3942	(765) 483-4450
Hamilton	1 Hamilton Co Sq Ste 30	Noblesville, IN 46060-2229	Charles Harris, MD	(317) 776-8500	(317) 776-8506
Hancock	110 S State St Ste A	Greenfield, IN 46140-	Ray Haas, MD	(317) 462-1125	(317) 462-1154
Hendricks	355 S Washington St Ste 210	Danville, IN 46122-1759	David M Hadley, MD	(317) 745-9217	(317) 745-9218
Johnson	86 W Court St	Franklin, IN 46131-2345	Craig A Moorman, MD	(317) 736-3770	(317) 736-5264
Marion	3838 N Rural St	Indianapolis, IN 46205-2930	Virginia A Caine, MD	(317) 221-2000	(317) 221-2307
Morgan	180 S Main St Ste 252	Martinsville, IN 46151-1988	E Allen Griggs, MD	(765) 342-6621	(765) 342-1062
Shelby	1600 E Sr 44#b	Shelbyville, IN 46176-1844	John Fleming, MD	(317) 392-6470	(317) 392-6472

<u>District 6</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Blackford	506 E VanCleve	Hartford City, IN 47348	George O Parks, MD	(765) 348-4317	(765) 348-3041
Delaware	100 W Main St Rm 207	Muncie, IN 47305-2874	Donna A Wilkins, MD	(765) 747-7721	(765) 747-7747
Fayette	111 W 4th St	Connersville, IN 47331-1901	Wayne B White, MD	(765) 825-4013	(765) 825-7189
Grant	401 S Adams St	Marion, IN 46953-2031	Calvin Russell, MD	(765) 668-8871	(765) 651-2419
Henry	208 S 12th St 2nd Fl	New Castle, IN 47362-4626	John Miller, MD	(765) 521-7059	(765) 521-7055
Howard	120 E Mulberry St 206	Kokomo, IN 46901-4657	Alan J Adler, MD	(765) 456-2402	(765) 456-2417
Jay	504 W Arch St	Portland, IN 47371-	Eugene M Gillum, MD	(260) 726-8080	(260) 726-2220
Madison	206 E 9th St	Anderson, IN 46016-1582	Richard H Shafer, MD	(765) 641-9523	(765) 646-9203
Randolph	211 S Main St	Winchester, IN 47394-1824	Jerome M Leahey, MD	(765) 584-1155	(765) 584-9059
Rush	Main St Courthouse Rm 5	Rushville, IN 46173-1854	Davis W Ellis, MD	(765) 932-3103	(765) 938-2604
Tipton	1000 S Main St	Tipton, IN 46072-1901	Glen Leer DO	(765) 675-8741	(765) 675-6952
Union	26 W Union St Ste 11	Liberty, IN 47353-1350	Shiv Kapoor, MD	(765) 458-5393	(765) 458-5582
Wayne	401 E Main St	Richmond, IN 47374-4288	David M Keller, MD	(765) 973-9233	(765) 973-9361

<u>District 7</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Brown	County Office Bldg	Nashville, IN 47448-0281	Robert M Seibel, MD	(812) 988-2255	(812) 988-5601
Greene	217 E Spring St Ste 1	Bloomfield, IN 47424-1469	Frederick R Ridge, MD	(812) 384-4496	(812) 384-2037
Jackson	207 N Pine St	Seymour, IN 47274-2143	Kenneth E Bobb, MD	(812) 522-6474	(812) 522-2916
Lawrence	2419 Mitchell Rd	Bedford, IN 47421-4731	Alan Smith, MD	(812) 275-3234	(812) 275-1094
Martin	PO Box 368	Shoals, IN 47581-0368	Larry Sutton, DO	(812) 247-3303	(812) 247-2009
Monroe	119 W 7th St	Bloomington, IN 47404-3989	Thomas W Sharp, MD	(812) 349-2542	(812) 339-6481
Orange	205 E Main St	Paoli, IN 47454-1591	Mark S Tinsley, MD	(812) 723-7112	(812) 723-7117
Owen	Courthouse 1st Fl	Spencer, IN 47460-1791	John Stearley, MD	(812) 829-5017	(812) 829-5045
Washington	806 Martinsburg Rd Ste 100	Salem, IN 47167-	Eddie R Apple, MD	(812) 883-5603	(812) 883-5017

<u>District 8</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Bartholomew	440 3rd St Ste 303	Columbus, IN 47201-6798	Walter H DeArmitt, MD	(812) 379-1550	(812) 379-1040
Clark	1216 Akers Ave	Jeffersonville, IN 47130-3719	Kevin R Burke, MD	(812) 282-7521	(812) 288-2711
Dearborn	215 W High St # B	Lawrenceburg, IN 47025-1910	Gary E Scudder, MD	(812) 537-8826	(812) 537-1852
Decatur	801 N Lincoln St	Greensburg, IN 47240-1397	Arthur P. Alunday, MD	(812) 663-8301	(812) 663-4174
Floyd	1917 Bono Road	New Albany, IN 47150-4607	Everett Bickers, MD	(812) 948-4726	(812) 948-2208
Franklin	459 Main St	Brookville, IN 47012-1405	Stephen R Porter, MD	(765) 647-4322	(765) 647-5248
Harrison	245 Atwood St N Wing	Corydon, IN 47112-8402	Rashidul Islam, MD	(812) 738-3237	(812) 738-4292
Jefferson	715 Green Rd	Madison, IN 47250-2143	H Schirmer Riley, MD	(812) 273-1942	(812) 273-1955
Jennings	200 E Brown St	Vernon, IN 47282-0323	Gregory Heumann, MD	(812) 352-3024	(812) 352-3030
Ohio	117 Sixth St	Rising Sun, IN 47040-	Arthur C Jay, MD	(812) 438-2551	(812) 438-4393
Ripley	102 W 1st N St Ste 106	Versailles, IN 47042-0423	David J Welsh, MD	(812) 689-5751	(812) 689-3909
Scott	1471 N Gardner St	Scottsburg, IN 47170-7751	R Kevin Rogers, MD	(812) 752-8455	(812) 752-6023
Switzerland	803 E Main St	Vevay, IN 47043-0014	Scott M Frede, MD	(812) 427-3220	(812) 427-3246

<u>District 9</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Crawford	306 Oakhill Circle	English, IN 47118-0246	Devi K Pierce, MD	(812) 338-2302	(812) 338-2301
Daviess	303 E Hefron St	Washington, IN 47501-2794	Robert H Rang, MD	(812) 254-8666	(812) 254-8643
Dubois	1187 S St Charles St	Jasper, IN 47546	Thomas Gootee, MD	(812) 481-7050	(812) 481-7069
Gibson	800 S Prince St	Princeton, IN 47670-2664	Bruce Brink Jr., DO	(812) 385-3831	(812) 386-8027
Knox	624 Broadway St	Vincennes, IN 47591-2091	Ralph J Jacqmain, MD	(812) 882-8080	(812) 882-5625
Perry	8th St Courthouse Annex	Cannelton, IN 47520-1251	Stephen E Syler, MD	(812) 547-2746	(812) 547-0415
Pike	801 Main St	Petersburg, IN 47567-1298	H.K. Fenol, Jr., MD	(812) 354-8796	(812) 354-2532
Posey	126 E 3rd St	Mount Vernon, IN 47620-1811	Herman Hirsch, MD	(812) 838-1328	(812) 838-8561
Spencer	Main St Courthouse 1st Fl Rm 1	Rockport, IN 47635-1492	David Marienau, MD	(812) 649-4441	(812) 649-6047
Vanderburgh	1 NW Martin Luther King Jr Blvd Rm 127	Evansville, IN 47708-1828	John A Heidingsfelder, MD	(812) 435-5684	(812) 435-5612
Warrick	107 W Locust St Ste 204	Boonville, IN 47601-	Noel Martin, MD	(812) 897-6105	(812) 897-6104

<u>District 10</u>	<u>Address</u>	<u>City, State, Zip</u>	<u>Health Officer</u>	<u>Phone#</u>	<u>Fax#</u>
Clay	609 E National Ave	Brazil, IN 47834-2659	S Rahim Farid, MD	(812) 448-9021	(812) 448-9018
Parke	116 W High St Rm 10	Rockville, IN 47872-1784	J Franklin Swaim	(765) 569-6665	(765) 569-4061
Putnam	Court House 4th Fl	Greencastle, IN 46120-	Robert Heavin, MD, Acting	(765) 653-5210	(765) 653-0211
Sullivan	901 N Section St	Sullivan, IN 47882-	Ernest Steven Dupre, MD	(812) 268-0224	(812) 268-0423
Vermillion	825 S Main St	Clinton, IN 47842-2201	John E Albrecht, MD	(765) 832-3622	(765) 832-3684
Vigo	147 Oak Street	Terre Haute, IN 47807-	Enrico Gargia, MD	(812) 462-3428	(812) 234-1010



OUTBREAK SPOTLIGHT....

“**Outbreak Spotlight**” is a regularly appearing feature in the *Indiana Epidemiology Newsletter* to illustrate the importance of various aspects of outbreak investigation. The event described below highlights how using an epidemic curve can be used to determine the most likely exposure from several possibilities.

The Jail House Rocked **Outbreak of *Clostridium perfringens* at a Correctional Facility**

Background

On April 22, 2002, a concerned citizen notified the Indiana State Department of Health (ISDH) that several inmates at the County A Jail had developed symptoms of gastroenteritis, characterized primarily by vomiting and diarrhea, after eating dinner on April 18. Approximately 280 inmates are housed at the facility. All meals are prepared in a central kitchen, served on individual trays, then transported to three facilities within the jail complex.

Epidemiologic Investigation

The ISDH and the County A Health Department (CAHD) initiated a collaborative investigation of this outbreak. A case-control study was conducted in order to describe the outbreak and to determine whether the source may have been food-related. CAHD obtained a menu of all food items served at the jail during breakfast, lunch and dinner on April 17 and 18, and the ISDH developed a questionnaire which documented illness history and foods eaten on the days in question. CAHD distributed the questionnaire to inmates at the jail. Completed questionnaires were returned to CAHD and forwarded to the ISDH Epidemiology Resource Center for analysis. A case was defined as any previously healthy person at the jail who became ill with diarrhea and/or vomiting on or after April 18. Any person at the jail who was well before and after April 18 was eligible to be included as a control. Any person who was ill for any reason in the week before April 18 or who became ill with symptoms that did not include diarrhea and/or vomiting was excluded from the study.

Twenty-nine inmates who reported becoming ill completed questionnaires. Twenty-six met the case definition. Eighteen inmates were identified as controls. Symptoms reported by the 26 cases included: diarrhea (100%), abdominal cramps (92%), body aches (65%) and nausea (58%). Other symptoms reported included vomiting, headache, and chills. The median duration of illness was 29.25 hours (range: 8.0 hours to 76.0 hours). At least four cases sought medical attention, but no one was hospitalized overnight. Eight cases submitted stool specimens, two of which met the laboratory criteria for *Clostridium perfringens* intoxication (see “Laboratory Results”.) Illness was mainly confined to one unit of the jail.

Exposure may have occurred during one of several meals. According to the epidemic curve (see figure 1), the peak of onset times occurred at 3:00 a.m. on Friday, April 19. The incubation period for *Clostridium perfringens* intoxication is 6-24 hours, averaging 10-12 hours. The most likely exposure period can be determined by counting back the average incubation period, 10-12 hours, from 3:00 a.m. on April 19, which is approximately 3:00-5:00 p.m. on Thursday, April 18. Alternately, the most likely exposure period can be determined by counting back the minimum incubation period, 6 hours, from the onset time of the first case, 11:00 p.m. on April 18. This is approximately 5:00 p.m. on Thursday, April 18. According to CAHD, dinner was served about 4:45-5:30 p.m. that day. Thus, the most likely exposure period occurred during dinner on April 18. Based on this information, the median incubation period of illness was 11.0 hours (range: 2.0 hours to 27.0 hours).

Statistical analysis of the food items served during dinner on April 18 revealed that chicken a la king was most likely associated with illness (odds ratio = undetermined, p-value = 0.06). Although the p-value exceeds the statistical cutoff of 0.05, the value does approach the statistical cutoff.

Environmental Assessment

A representative from CAHD visited the jail on April 19 to review food preparation practices and collect any available food samples. Two critical violations were noted. First, the 2-door cooler next to the preparation line measured 50°F. According to Indiana Food Code, refrigeration temperature must be 41°F or below. This violation was to be corrected by April 26. Second, consumed food was discarded in batter/flour, and a box was stacked on open nacho chips. Eating must only be done in approved areas, and boxes are not to be stacked on open food items. These two violations were corrected on site by discarding the batter and nacho chips. Several food samples were collected for laboratory analysis (see “Laboratory Results”).

Laboratory Results

Eight cases submitted stool specimens to the ISDH Laboratories for analysis. Four specimens were collected as bulk stool with no preservation and were unsatisfactory for analysis. Four specimens tested negative for *Campylobacter*, *E. coli* O157:H7, *Salmonella* and *Shigella*. *Clostridium perfringens* was detected in the four specimens as follows:

- | | | |
|--------------|-------------------------------|-----------------------|
| • Specimen 1 | 4 x 10 ⁵ CFU*/gram | *colony forming units |
| • Specimen 2 | 1 x 10 ⁶ CFU/gram | |
| • Specimen 3 | 2 x 10 ⁴ CFU/gram | |
| • Specimen 4 | 1 x 10 ⁶ CFU/gram | |

Cases are confirmed by demonstration of *Clostridium perfringens* in stool cultures yielding at least 1 x 10⁶ CFU/gram¹.

Several food samples were available for laboratory analysis. CAHD collected chili, fruit, and bread with margarine from lunch served on April 18. Chicken a la king, mashed potatoes, dessert, and bread were collected from dinner served on April 18. The chicken a la king had an elevated aerobic plate count (APC), which is the level of bacteria found in a food item. This does not include *Clostridium perfringens*. All other samples tested within normal bacterial standards.

Conclusions

This investigation confirms that an outbreak of gastroenteritis occurred following dinner at the County A Jail on April 18. The extremely short window of illness onset and lack of subsequent cases after the outbreak strongly suggests a common source exposure.

The causative agent of this outbreak was *Clostridium perfringens*. Two stool specimens were confirmed positive by laboratory testing. The symptoms experienced (diarrhea and cramping) are typical of illness caused by *C. perfringens*. Vomiting and fever are usually absent, as was reported in this outbreak. The duration of symptoms (median: 29.25 hours) and incubation period (median: 11.0 hours) are also typical of clostridial foodborne intoxication. *C. perfringens* gastroenteritis generally has an incubation period of 6 to 24 hours (average of 10 to 12 hours), and symptoms generally last 12 to 24 hours.

Clostridium perfringens is a bacterium found in soil and the gastrointestinal tract of healthy people and animals, including cattle, pigs, poultry and fish. The bacterial cells form spores that allow the organism to survive periods of environmental stress, such as temperature extremes and dryness. Illness occurs when food contaminated by soil or feces is held under conditions favorable for multiplication of the organism and is subsequently ingested. Once ingested, the organism replicates in the gastrointestinal tract and produces an enterotoxin that causes the characteristic symptoms. The illness is not transmissible person-to-person.

Illness is usually associated with inadequately heated or reheated “dense” foods such as meats, stews, and gravies. Bacterial spores survive normal cooking temperatures, germinate and then multiply during slow cooling, storage at room temperature, and inadequate reheating. Statistical analysis revealed that the most likely meal associated with transmission was dinner on April 18, and the most likely contaminated meal item was chicken a la king. In addition, the sample of chicken a la king had a high APC, indicating possible mishandling or temperature abuse. Foods must be maintained at temperatures at or below 41°F or at or above 140°F at all times except during preparation. Cooked foods must be cooled from 140°F to 70°F within two hours and from 70°F to 41°F within an additional four hours. Since illness was confined to one ward of the jail, it is possible that temperature abuse (slow cooling or improper holding temperatures) may have occurred during meal distribution to inmates on individual wards. *Clostridium perfringens* was not detected in the chicken a la king, although it is not uncommon for pathogens to be unevenly distributed in food.

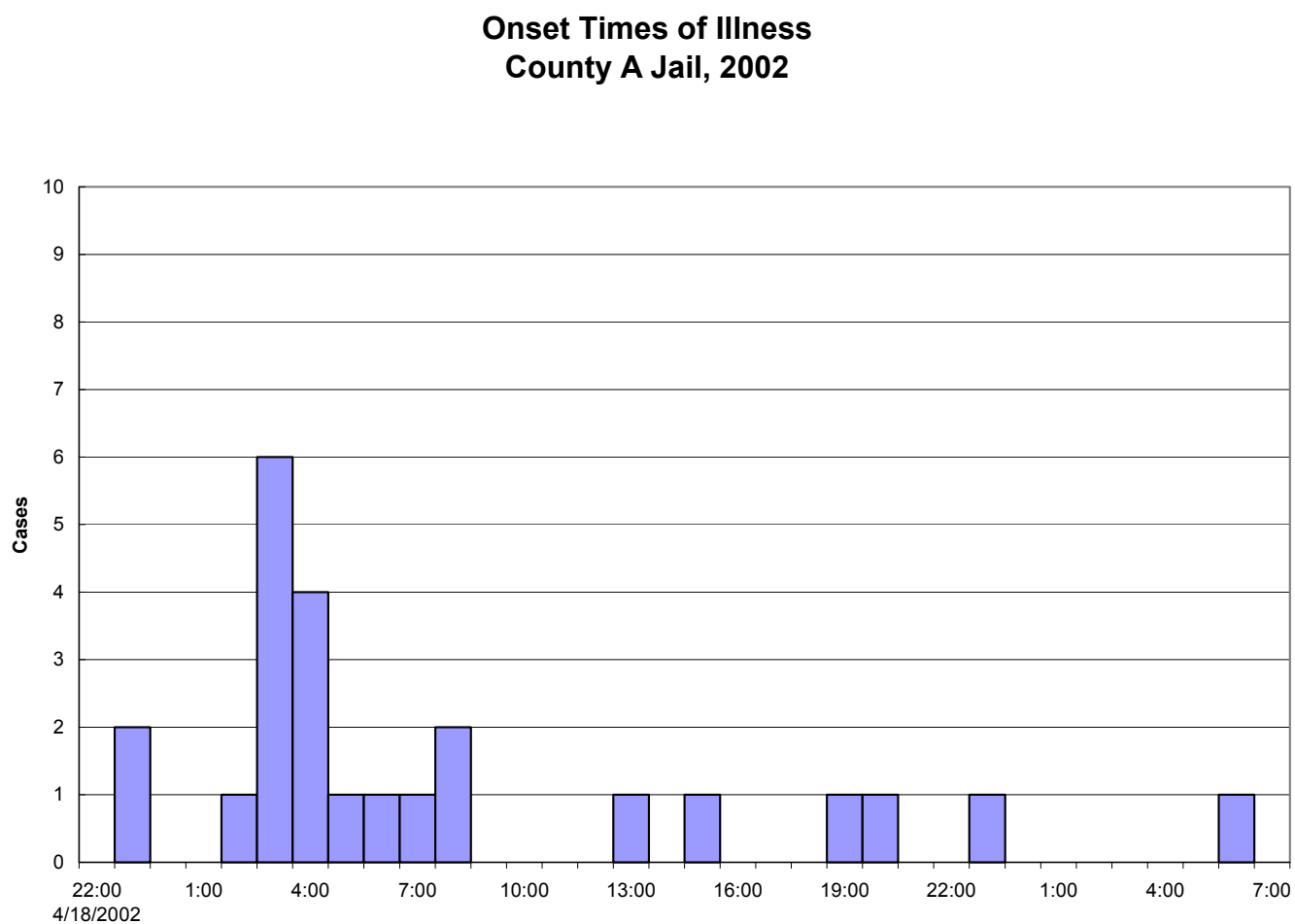
In general, most outbreaks of *C. perfringens* foodborne intoxication can be prevented by strictly adhering to the following food safety practices:

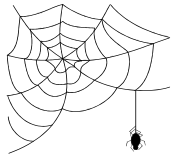
1. Monitor and maintain proper temperatures of heating, cooling, and holding equipment.
2. Monitor and maintain proper temperatures of food during storage and holding.
3. Cool foods rapidly to achieve proper temperature. Cooling can be accomplished by using one or more of the following methods:
 - Placing foods in shallow pans
 - Separating foods into smaller or thinner portions
 - Using rapid cooling equipment, such as ice baths or ice paddles
 - Using containers that facilitate heat transfer
 - Adding ice as an ingredient

References

- ¹Control of Communicable Diseases Manual. American Public Health Association, 17th edition, 2000. James Chin, ed.

Figure 1.





Wonderful Wide Web Sites

ISDH Data Reports Available

**The ISDH Epidemiology Resource Center has the following data reports
and the Indiana Epidemiology Newsletter available on the ISDH Web Page:**

<http://www.statehealth.IN.gov> (under Data and Statistics)

Indiana Cancer Incidence Report (1990, 95,96)	Indiana Maternal & Child Health Outcomes & Performance Measures (1988-97, 1989-98, 1990-99)
Indiana Cancer Mortality Report (1990-94, 1992-96)	Indiana Mortality Report (1999, 2000)
Indiana Health Behavior Risk Factors (1995-96, 97, 98, 99, 2000, 2001)	Indiana Natality Report (1995, 96, 97, 2000)
Indiana Hospital Consumer Guide (1996)	Indiana Induced Termination of Pregnancy Report (2000)
Indiana Marriage Report (1995, 97, 2000)	Indiana Natality/Induced Termination of Pregnancy/Marriage Report (1998, 1999)
	Indiana Report of Diseases of Public Health Interest (1996, 97, 98, 99)

HIV Disease Summary

Information as of December 31, 2002 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

461	New HIV cases from January through December 2002	12-month incidence	7.58 cases/100,000
3,700	Total HIV-positive, alive and without AIDS on December 31, 2002	Point prevalence	60.86 cases/100,000

AIDS cases to date:

469	New AIDS cases January through December 2002	12-month incidence	7.71 cases/100,000
3,228	Total AIDS cases, alive on December 31, 2002	Point prevalence	53.09 cases/100,000
6,927	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in December MMWR Week 49-52		Cumulative Cases Reported January - December MMWR Weeks 1-52	
	2001	2002	2001	2002
Campylobacteriosis	68	21	505	451
Chlamydia	1,051	1,087	15,654	17,056
<i>E. coli</i> O157:H7	9	4	90	76
Hepatitis A	8	1	101	46
Hepatitis B	29	8	77	59
Invasive Drug Resistant <i>S. pneumoniae</i> (DRSP)	40	15	207	165
Gonorrhea	559	479	7,082	7,368
Legionellosis	2	2	23	26
Lyme Disease	3	0	26	20
Measles	0	0	4	2
Meningococcal, invasive	10	0	47	32
Pertussis	36	32	116	161
Rocky Mountain Spotted Fever	0	0	1	3
Salmonellosis	59	38	549	509
Shigellosis	37	14	252	112
Syphilis (Primary and Secondary)	6	6	151	65
Tuberculosis	16	14	115	128
Animal Rabies	0	1	15 (15 Bats)	32 (30 Bats, 1 Horse and 1 Skunk)

Note: Case totals for 2002 are preliminary and will change as cases with onsets in 2002 currently being investigated are completed and returned to the ISDH.

For information on reporting of communicable diseases in Indiana, call the ISDH Communicable Disease Division at (317) 233-7665.

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